5.10 Transportation, Circulation and Parking

The information contained in this section was obtained from the Traffic Analysis dated August, 1996 prepared by Austin Foust Associates, Inc. which is included in Appendix I, and a Congestion Management and Measure M Program report dated August, 1996 prepared by GSL Associates which is included in Appendix J herein.

5.10.1 Introduction

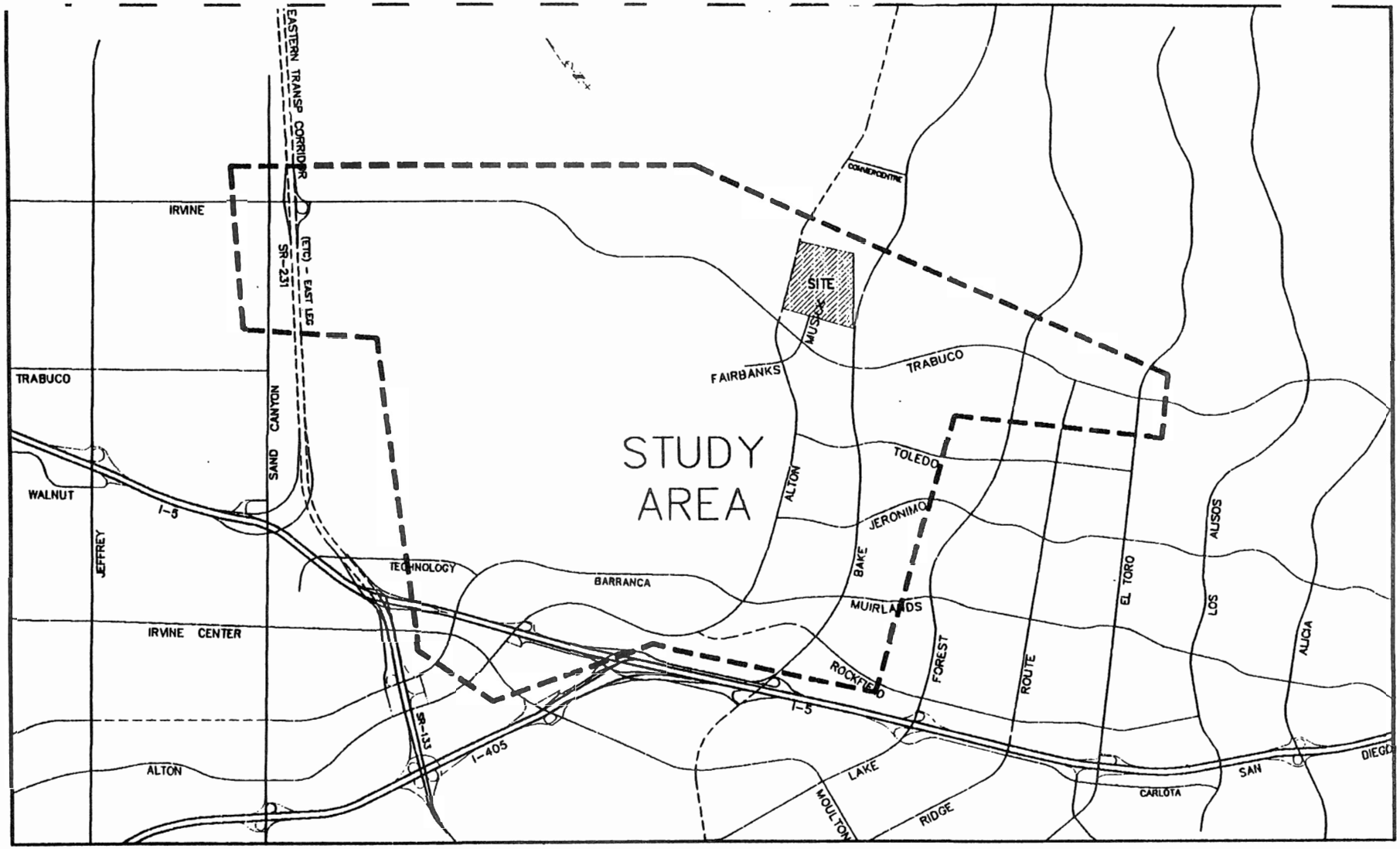
a. Overview

The purpose of this analysis is to identify the transportation, circulation, and parking impacts associated with the Musick Jail Expansion, and to recommend mitigation measures that could provide adequate levels of service on the surrounding circulation system. In addition, this section discusses project consistency with the Orange County Congestion Management and Measure M Programs. Traffic impacts of the proposed development plan were identified by analyzing interim year and long-range traffic conditions for roadways and intersections within a defined traffic analysis study area (see discussion later in this chapter). The traffic analysis examines average daily traffic (ADT) on the roadway system as well as peak hour impacts at major intersections throughout the study area.

The interim year used in the traffic analysis represents a time frame that is around five to seven years in the future consistent with the Congestion Management Program/Measure M Program, and the long-range is based on the year 2020. The interim year impact analysis assumes buildout of the entire project (Complexes 1, 2 and 3) in the next five to seven years, even though actual construction may extend over a shorter or longer period of time. This assumption results in a worst case scenario for traffic impact purposes.

A study area was defined for this analysis based on the impact of the proposed project on the surrounding street system. This is illustrated in Exhibit 25 and includes roadway segments which have more than a 1,000 ADT increase due to the proposed project. Within this study area, peak hour intersection analyses are carried out for those locations where the intersection capacity utilization is increased by more than one percent.

The study area generally extends from Sand Canyon Avenue to the west, the I-5 Freeway to the south and El Toro Road to the east. It includes portions of the Cities of Irvine and Lake Forest and unincorporated Orange County.



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STUDY AREA

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EXHIBIT 25

b. Methodology

Traffic forecast data used for this analysis of the proposed Musick Jail expansion was derived from several sources. The principal resource was the El Toro Sub-Area Model (ETSAM), a traffic model developed for use in the analysis of the reuse of the El Toro MCAS Base. The ETSAM is a direct derivative of the Orange County Transportation Analysis Model (OCTAM 2.7), and is designed to forecast long-range average daily traffic (ADT) volumes on the highway system (freeways and arterials) in the area of Orange County surrounding the El Toro site. The methodology utilized in this analysis is consistent with OCP-92 as required by the Congestion Management Program/Measure M Program.

To develop long-range peak hour intersection volume forecasts, data was utilized from other sources such as the South County Sub-Area Model (SCSAM), a traffic model developed for various applications in south Orange County including the Foothill Transportation Corridor southern segment. The long-range forecasts applied in this study are hence comprised of ETSAM ADT forecasts and peak hour intersection forecasts from other sources which have been adjusted to correlate with the ETSAM ADT projections.

Since the ETSAM does not currently have the capability to produce short-range (interim year) traffic forecasts, the interim year forecasts applied in this study were developed from comparative data from other sources, principally SCSAM. The procedure involved determining interpolation factors representative of the traffic growth indicated by the interim year and long-range time frames. These interpolation factors were then applied to the long-range peak hour and ADT forecasts that were prepared as previously described, and existing observed traffic counts.

c. Performance Criteria

Identification of project impacts is based on specified performance criteria which evaluate the operating condition of roadways within the study area. The performance criteria include an arterial link analysis component and an intersection capacity utilization (ICU) analysis component as indicated in Table 19. The arterial link analysis component involves the use of V/C ratios based on ADT volumes, while the ICU analysis component is based on AM and PM peak hour intersection turn volumes. The ADT capacities used by the City of Irvine are slightly different from those used by the County of Orange and the City of Lake Forest. For this analysis, City of Irvine capacities are applied for roadways within Irvine City limits, and Lake Forest/Orange County capacities are applied in those respective jurisdictions.

The purpose of the performance criteria is to specify target levels of service on the arterial highway system. Traffic levels of service are designated "A" through "F", with level of service (LOS) "A" representing free flow conditions and LOS "F" representing severe traffic congestion (see Table 19 for a description of the various levels of service). Specific LOS standards have been established to serve both as a guideline for evaluating observed traffic conditions and as a target or goal when evaluating future development plans and circulation system modifications. At the regional planning level, the statewide Congestion

Management Program (CMP) specifies LOS "E" (V/C ratio or ICU value less than or equal to 1.00) as the operating standard for roadways and intersections on the CMP highway system. At the County and local level, the Orange County Growth Management Program (GMP) has established LOS "D" (V/C ratio or ICU value less than or equal to .90) as the target level of service for the roadway system. There currently are no "deficient intersections" as defined in the GMP guidelines located in the study area.

Table 19
Traffic Analysis Performance Criteria

I. ADT ARTERIAL LINK VOLUMES

Level of Service to be determined based on average daily traffic (ADT) volume-to-capacity (V/C) ratios using the following ADT capacities:

CITY OF IRVINE		
Major Arterial	8 lane	72,000
	6 lane (augmented)	65,000
	6 lane	54,000
Primary Arterial	4 lane (augmented)	42,000
	4 lane	32,000
Secondary Arterial	4 lane	28,000
Commuter	2 lane	13,000
COUNTY OF ORANGE/CITY OF LAKE FOREST		
Principal Arterial	8 lane divided	75,000
Major Arterial	6 lane divided (augmented)	67,600
	6 lane divided	56,300
Primary Arterial	4 lane divided (augmented)	45,000
	4 lane divided	37,500
Secondary Arterial	4 lane undivided (augmented)	30,000
	4 lane undivided	25,000
Collector	2 lane undivided	12,500

PERFORMANCE STANDARDS:
Non-CMP roadways - Level of Service D (ADT V/C less than or equal to .90)
CMP highways - Level of Service E (ADT V/C less than or equal to 1.00)

II. PEAK HOUR INTERSECTION CAPACITY UTILIZATION (ICU)

Level of service to be based on peak hour ICU values calculated using the following assumptions:

Saturation Flow Rate: 1,700 vehicles/hour/lane
Clearance Interval: .05
Right-Turn-On-Red Allowed: Yes*
Right-Turn Adjustment Factor: .75

* "De-facto" right-turn lane is used in the ICU calculation if 19 feet from edge to outside of thru-lane exists and parking is prohibited during peak periods.

PERFORMANCE STANDARDS:

Non-CMP intersections - Level of Service D (peak hour ICU less than or equal to .90)
CMP intersections - Level of Service E (peak hour ICU less than or equal to 1.00)

III. MITIGATION REQUIREMENT

For V/C or ICU greater than the acceptable level of service, mitigation of the project contribution is required to bring intersection back to acceptable level of service or to no-project conditions if project contribution is greater than .03 at CMP locations and greater than .01 at all other locations.

The potential for ADT link deficiencies based on V/C ratios to translate into actual capacity deficiencies is evaluated in this study by examining the peak hour intersection operation at the end or ends of roadway segments. A given link deficiency is considered theoretical rather than actual if the intersections at the ends of the link operate at acceptable levels.

The performance criteria also establishes the thresholds for requiring mitigation measures to address project impacts at individual roadways and intersections. Consistent with City and County traffic study guidelines for locations where the LOS performance standard is not maintained and the project contribution to the ADT V/C ratio or the peak hour ICU value is greater than .01, mitigation of the project contribution is required to bring the location back to an acceptable LOS or to the LOS under no-project traffic conditions.

d. Relationship to the El Toro Reuse Plan

The County of Orange is currently preparing a Community Reuse Plan for the El Toro MCAS. The EIR being circulated for the Reuse Plan contains several alternatives with respect to future land uses on the Base, plus accompanying transportation improvement strategies to serve the additional traffic. It can be anticipated that trip generation will be significantly higher than the current military use, and the proposed new roadways and additional mitigation measures will provide additional capacity for the increase in traffic.

The El Toro Community Reuse Plan Study has been carried out at a General Plan level of detail, providing information to aid in the selection of a Reuse Plan. At a later stage, more detailed studies will be undertaken which will provide information on future traffic and associated traffic improvements at a finer level of detail, comparable to that used here to address the Musick Jail expansion. Hence, at this time, background traffic assumptions used here do not incorporate a Reuse Plan for El Toro, and are based on the no-project scenario in the Reuse EIR. At the time a Reuse Plan is defined and the more detailed studies are carried out, those studies will use information which includes actions taken on the proposed Musick Jail expansion. It is expected that a Reuse Plan will be adopted by the Board of Supervisors by December 15, 1996. Since the Musick Jail project and EIR are expected to be considered prior to that date, this analysis is based on the existing baseline conditions at MCAS El Toro. The El Toro Reuse Plan EIR describes the impacts of the Reuse Plan and the Musick Jail project.

e. Definitions

Certain terms and abbreviations used throughout this report are defined below to clarify their intended meanings:

ADT	Average Daily Traffic.
ICU	Intersection Capacity Utilization. A factor used to measure the volume/capacity ratio for an intersection and to determine its level of service.
LOS	Level of Service. A scale used to evaluate circulation system performance based on volume/capacity ratios of arterial segments or intersection ICU values. The levels range from "A" to "F," with LOS "A" representing free flow traffic and LOS "F" representing severe traffic congestion.
PEAK HOUR	This generally refers to the hour during the AM peak period (typically 7:00-9:00 AM) or the PM peak period (typically 3:00-6:00 PM) in which the greatest number of vehicle trips are generated by a given land use or are travelling on a given roadway.
VPD	Vehicles Per Day. This has the same meaning as ADT, but is generally used in a trip generation context rather than in reference to the highway volume of an arterial segment.
V/C	Volume-to-Capacity Ratio. This is typically described as a percentage of capacity utilized by existing or projected traffic on a segment of arterial or an intersection turn movement.

5.10.2 Environmental Setting

This section describes the transportation setting for the proposed project. The existing circulation system and prevailing levels of service are first discussed followed by a description of the future circulation system in the study area.

a. Existing Highway Systems

Primary access to the project site will be provided by the future extension of Alton Parkway northeast of Irvine Boulevard, Irvine Boulevard, and Bake Parkway. Alton Parkway is currently built as a six-lane major arterial generally running parallel to Bake Parkway to its northerly termination point at Irvine Boulevard. Irvine Boulevard is a six-lane major arterial which becomes Trabuco Road south of Bake Parkway. Bake Parkway is a major arterial west of Irvine Boulevard and a primary arterial east of Irvine Boulevard.

Regional access to the project vicinity is provided by the Santa Ana Freeway (I-5) and the San Diego Freeway (I-405). The project site is also currently served by the Foothill Transportation Corridor (SR-241) which is operated as a toll facility, and is located just northeast of the study area.

Exhibit 26 illustrates the average daily traffic (ADT) volumes on the existing circulation system in the study area. Adjacent to the project site, Irvine Boulevard carries 30,000 ADT and Bake Parkway carries 22,000 ADT. Alton Parkway, the principal route to the freeway for site generated traffic ranges from 14,000 ADT at Irvine Boulevard to 53,000 near I-5.

Existing AM and PM peak hour intersection turn volumes at key intersections were counted in 1996. The resulting intersection capacity utilization (ICU) values and levels of service are presented in Table 20 (see intersection location diagram in Exhibit 27).

Table 20
Existing ICU Summary

Intersection		Existing	
		A.M.	P.M.
1.	Sand Canyon & Irvine	.77	.72
2.	Alton & Irvine	.40	.68
3.	Musick/Fairbanks & Irvine	.61	.70
4.	Bake & Irvine/Trabuco	.89	1.01*
5.	Lake Forest & Trabuco	.70	.64
6.	Ridge Route & Trabuco	.42	.66
7.	El Toro & Trabuco	.61	.74

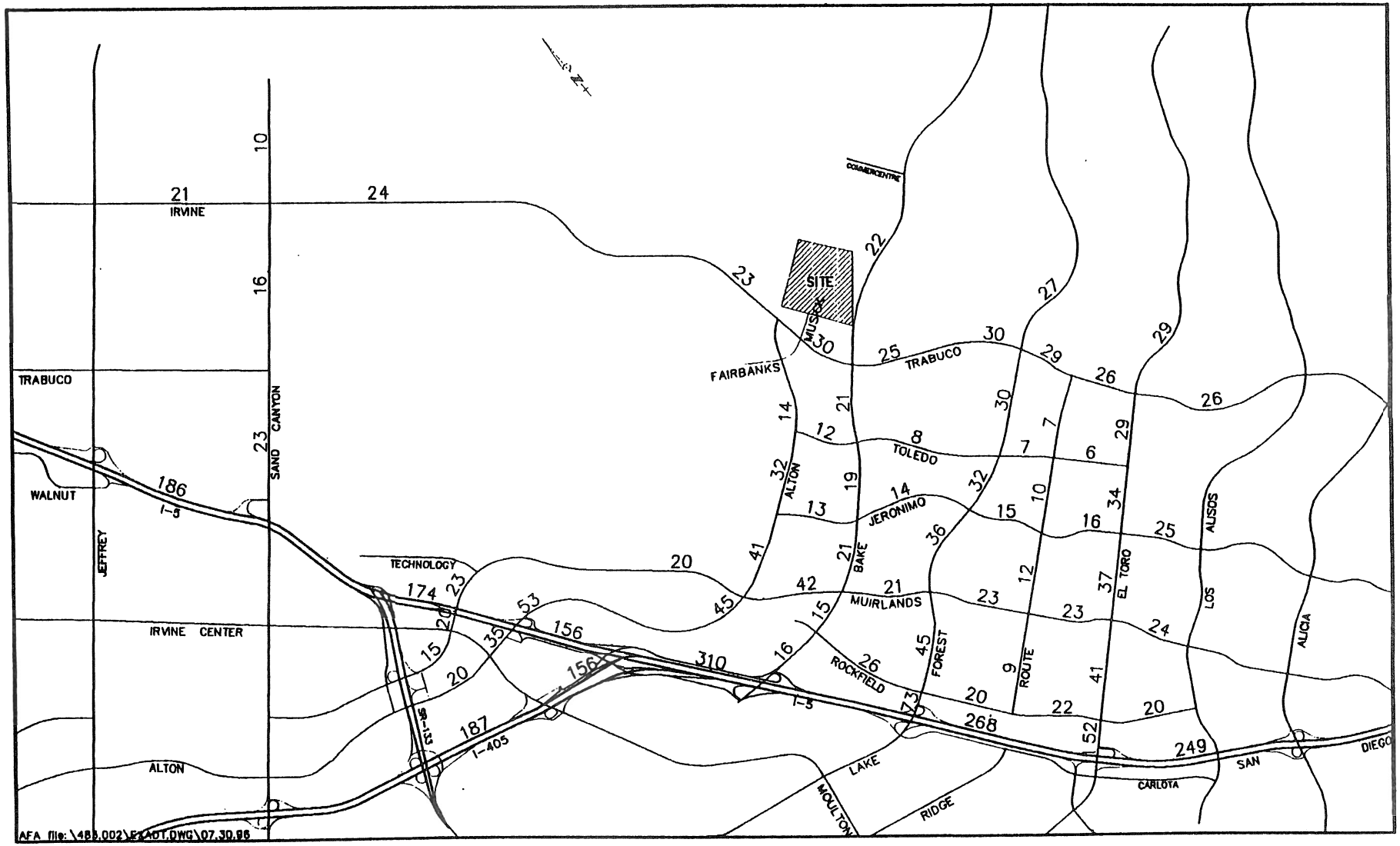
Intersection		Existing	
		A.M.	P.M.
8.	Alton & Toledo	.66	.83
9.	Bake & Toledo	.79	.82
10.	Alton & Jeronimo	.57	.66
11.	Bake & Jeronimo	1.11*	.84
12.	Alton & Muirlands/Barranca	.68	.77
13.	Bake & Muirlands	.76	.87
14.	Bake & Rockfield	.68	.77
15.	Barranca & Irvine Center	.52	.49
16.	Irvine Center & Alton	.80	.88
17.	I-5 NB Ramps & Alton	.64	.55
18.	Enterprise & Alton	.64	.78
19.	Bake & I-5 NB Ramps	--	--
20.	Bake & I-5 SB Off-Ramp	--	--

* Exceeds LOS "D"
Level of service ranges: .00 - .60 A
.61 - .70 B
.71 - .80 C
.81 - .90 D
.91 - 1.00 E
Above 1.00 F
Source: Traffic counts carried out in 1996

The intersection capacity utilization (ICU) values are a means of representing peak hour volume/capacity ratios, with a value of .90 representing the upper threshold for level of service (LOS) "D". As the table indicates, all signalized study intersections currently operate at LOS "D" or better during the AM and PM peak hours, with the exceptions of Bake Parkway and Irvine Boulevard/Trabuco Road during the PM peak hour and Bake Parkway and Jeronimo Avenue during the AM peak hour.

b. Future Highway System

The future highway network used in this analysis assumes various improvements to the existing system. For the long-range, these are based on the Orange County Master Plan of Arterial Highways (MPAH) illustrated in Exhibit 28. The interim year analysis assumes circulation improvements that are anticipated to be implemented over the next five years.



EXISTING ADT VOLUMES

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EXHIBIT 26

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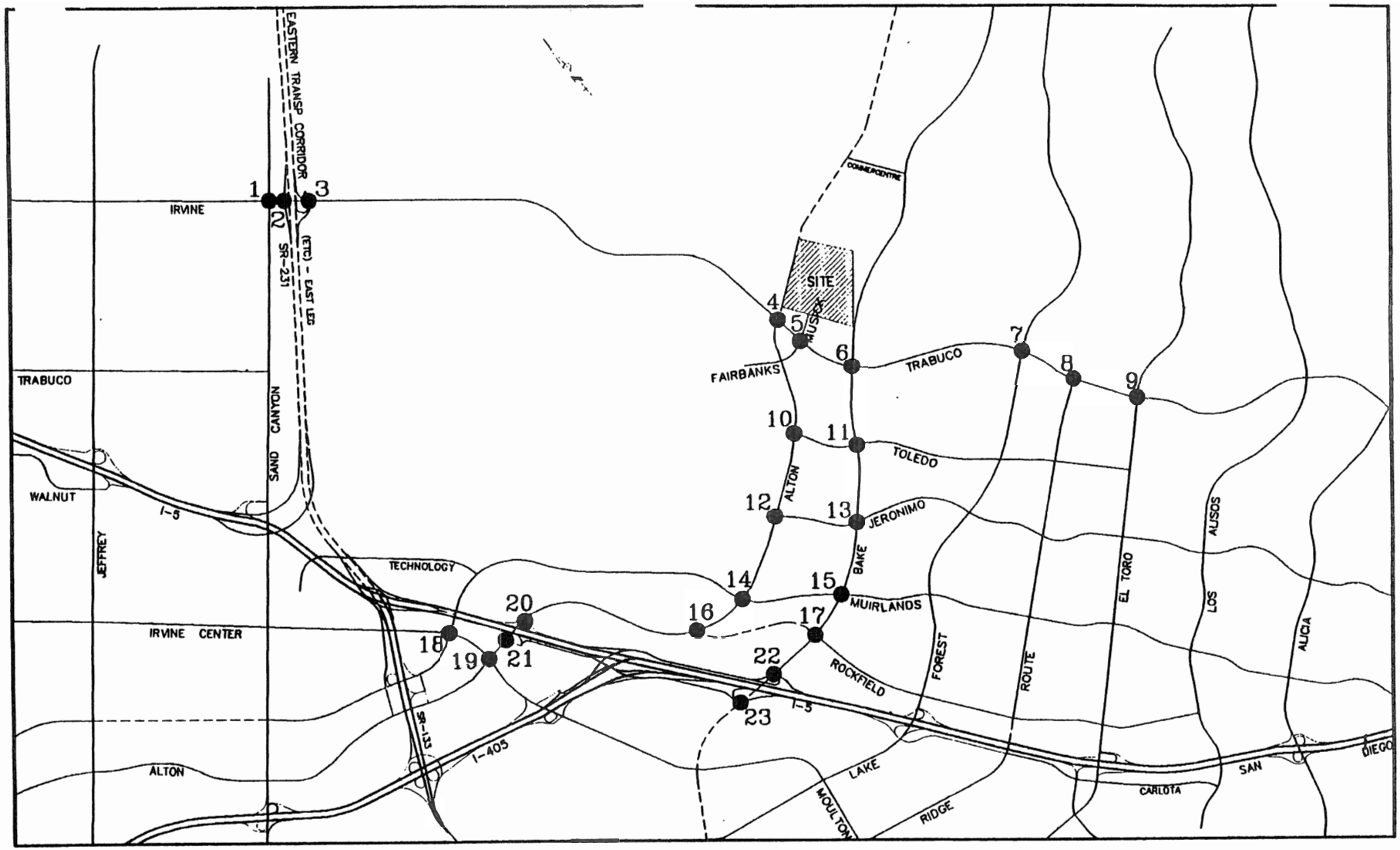

LEGEND

——— Existing roadway

- - - - - - - Future roadway

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INTERSECTION LOCATION DIAGRAM

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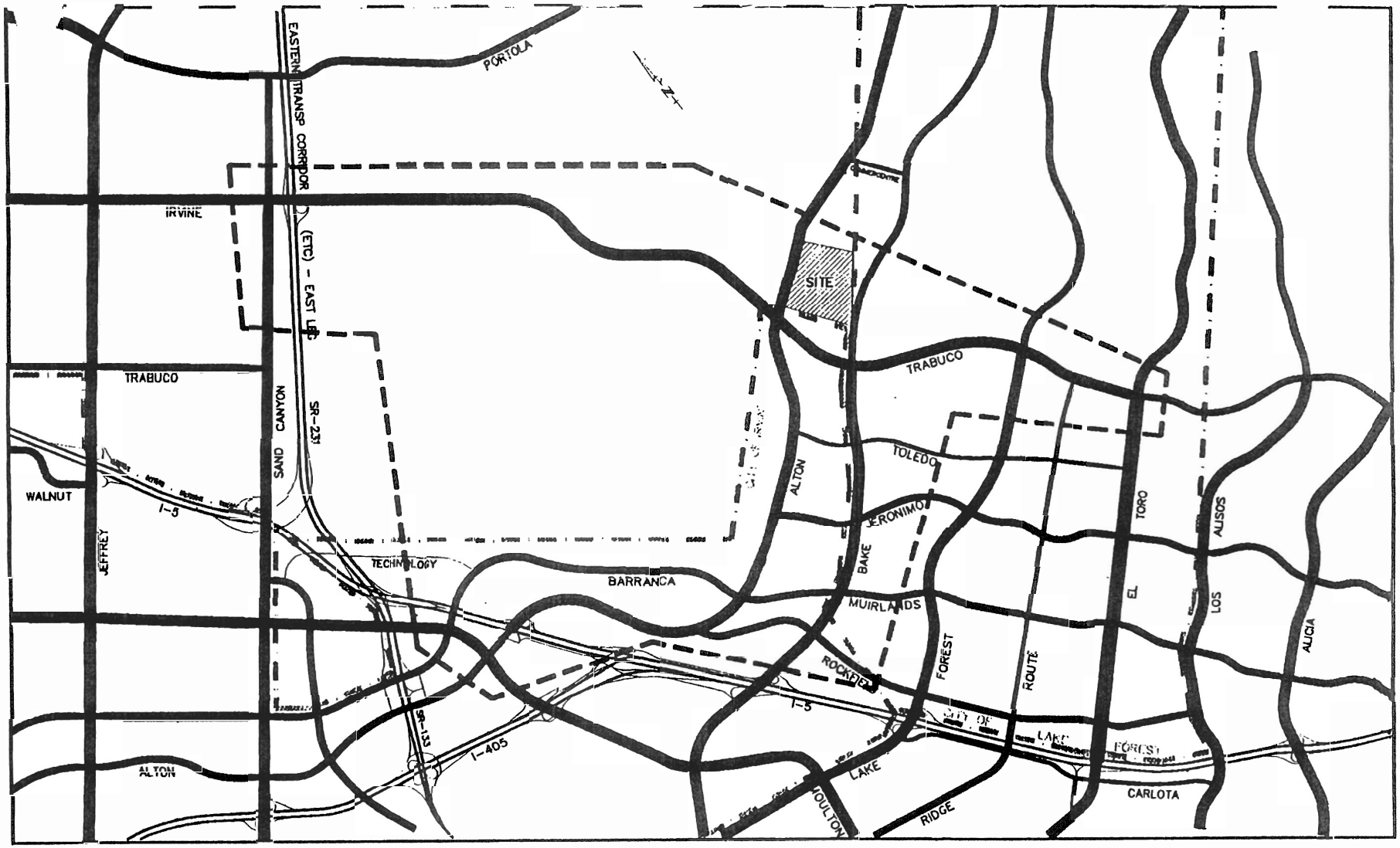
EXHIBIT 27



LEGEND

- Principal Arterial (8 lane divided)
- Major Arterial (6 lane divided)
- Primary Arterial (4 lane divided)
- Secondary Arterial (4 lane undivided)
- Commuter Arterial (2 lane undivided)
- Study Area Boundary
- City Boundary

MASTER PLAN OF ARTERIAL HIGHWAYS

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EXHIBIT 28

Table 21 summarizes the interim year and long-range improvements assumed for the study area circulation system. Interim year improvements include extension of Alton Parkway east of Irvine Boulevard, extension of Bake Parkway west of the San Diego Freeway (I-5) to Irvine Center Drive, construction of the east leg of the Eastern Transportation Corridor (SR-231) toll facility east of Irvine Boulevard, and widening of Bake Parkway north of the I-5 Freeway, El Toro Road, and Irvine Boulevard west of Alton Parkway to their full master plan widths.

Table 21
Roadway Improvements Summary

Location	Time Frame	Improvement
I. Arterials		
Alton Pkwy, Irvine Blvd to Foothill Transportation Corridor	Interim year	Extend six-lane roadway north to FTC
Bake Pkwy n/o I-5	Interim year	Widen to eight lanes
Bake Pkwy s/o I-5	Long-range	Extend six-lane roadway southwest to Irvine Center Drive
Rockfield e/o Alton Pkwy	Long-range	Extend four-lane roadway west to Alton Pkwy
El Toro Rd/I-5 to Trabuco Rd	Interim year	Widen to eight lanes
El Toro Rd n/o Trabuco Rd	Interim year	Widen to six lanes
Irvine Blvd, Sand Canyon Rd to Alton Parkway	Interim year	Widen to six lanes
II. Intersections		
1. Sand Canyon and Irvine	Long-range	Add 2nd NB right-turn lane Add 3rd SB through lane Add 2nd EB left-turn lane Add 3rd EB through lane Add 2nd WB left-turn lane Add 3rd WB through lane
2. ETC East Leg SB & Irvine	Interim year	New intersection
3. ETC East Leg NB & Irvine	Interim year	New intersection
4. Alton & Irvine	Interim year	New north leg
6. Bake & Irvine/Trabuco	Interim year	Add 3rd NB through lane
13. Bake & Jeronimo	Interim year	Add 2nd NB left-turn lane
14. Alton & Muirlands/Barranca	Long-range	Add SB free right-turn lane Add WB right-turn lane

	Location	Time Frame	Improvement
16.	Alton & Rockfield	Interim year	New intersection
18.	Barranca & Irvine Center	Interim year Long-range	Add 3rd NB through lane Add 3rd SB through lane Add 4th EB through lane Add EB right-turn lane Add WB right-turn lane
19.	Irvine Center & Alton	Long-range	Add NB free right-turn lane
20.	I-5 NB & Alton	Interim year	Add NB free right-turn lane
21.	Enterprise & Alton	Long-range	Add NB free right-turn lane Add 2nd WB left-turn lane
22.	Bake & I-5 NB	Interim year	New intersection
23.	Bake & I-5 SB	Interim year	New intersection

Long-range circulation improvements in the study area consist of the extension of Rockfield Avenue to Alton Parkway.

The intersections identified in the previous section as currently operating at an unacceptable level of service will operate at acceptable levels of service under both the interim year and long-range conditions as a result of the intersection improvements summarized in this section.

c. Trip Generation

New trips generated by the proposed expansion of the facility were derived from data provided by the Orange County Sheriff Department, and are summarized according to individual components in Table 22. As this table indicates, the proposed project will generate an additional 4,253 daily trips, of which 474 will be generated during the AM peak hour and 425 will be generated during the PM peak hour. For further data on the individual components of the overall trip generation refer to the Traffic Analysis report included in the appendices.

Table 22
Musick Jail Expansion Trip Generation Summary

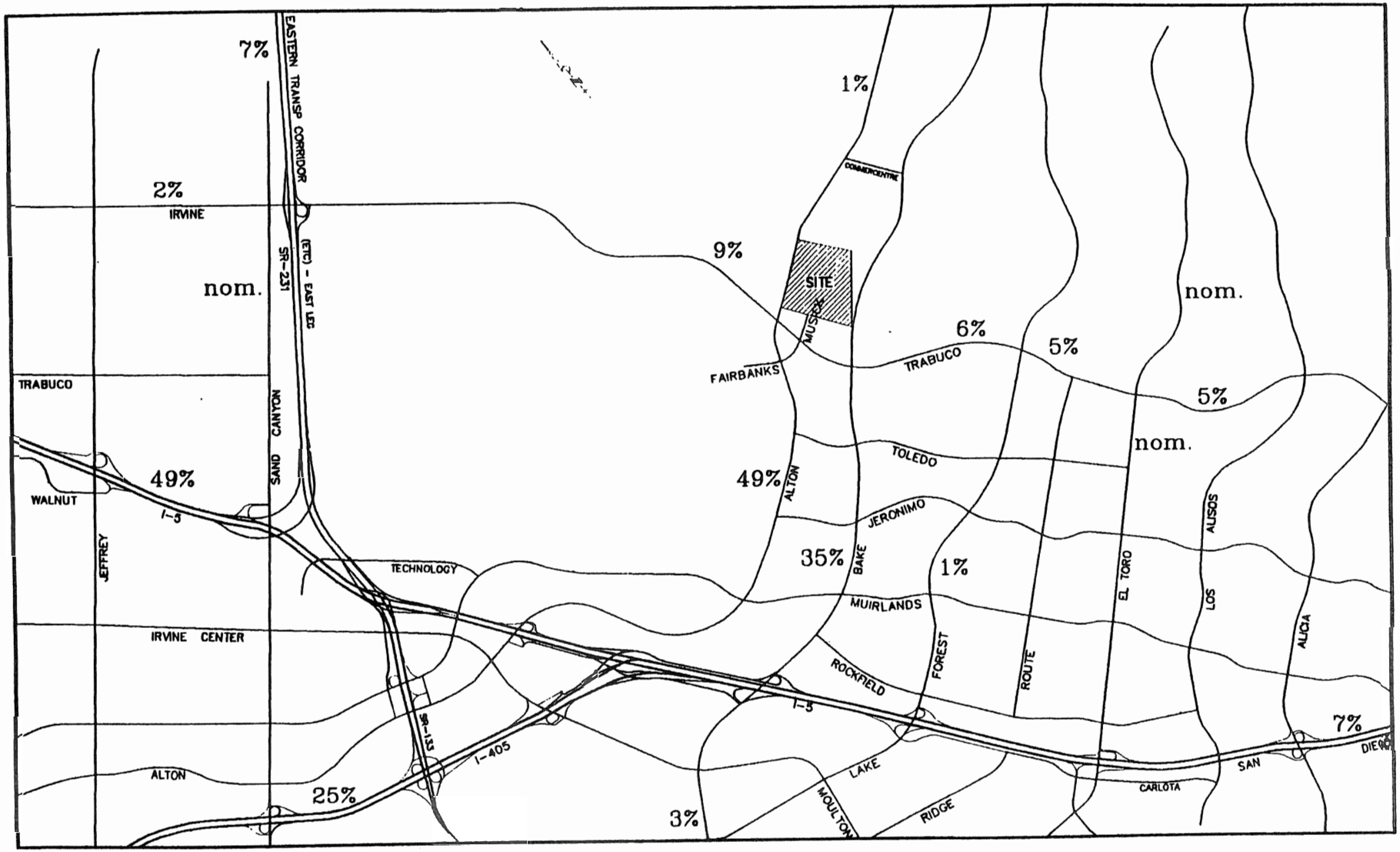
	AM Peak Hour			PM Peak Hour			
	In	Out	Total	In	Out	Total	ADT
JAIL							
Staff	96	217	313	0	114	114	2,475
Inmate transportation	11	12	23	12	11	23	96
Visitors	31	0	31	114	114	228	926
Deliveries	5	4	9	4	5	9	90
Total	143	233	376	130	244	374	3,587
SHERIFF SUBSTATION/ICF							
Substation staff	17	15	32	10	9	19	225
Patrol cars	16	15	31	0	11	11	186
ICF staff	35	0	35	8	13	21	255
Total	68	30	98	18	33	51	666
TOTAL	211	263	474	148	277	425	4,253

d. Trip Distribution

Distribution of project-generated traffic was derived by considering the different trip components (i.e., staff, visitors, inmate transfers, deliveries, and Sheriff patrols). Each component differs with respect to its travel characteristics and therefore has a different purpose.

Jail and Sheriff Station/ICF staff and visitor distribution was derived based on future demographic distribution for Orange County, with population being the primary factor. Inmate transfer distribution was derived based on the locations of county courthouses in relation to the location of the proposed project. Delivery truck distribution was derived based on employment centers in Orange County. Patrol car distribution was derived based on the demographics of the south county communities served by the Sheriff Department.

The combined trip distribution on the interim year circulation system is illustrated in Exhibit 29. As can be seen, the majority of the traffic is oriented to the I-5 and I-405 freeways. Changes in the demographics and development of new areas in Orange County by the year 2020 result in the combined general trip distribution on the year 2020 circulation system being slightly different, and this is presented in Exhibit 30. The major change is an increase in the distribution to areas north of the site with an equal decrease in the distribution to the areas south of the site.



INTERIM YEAR DISTRIBUTION

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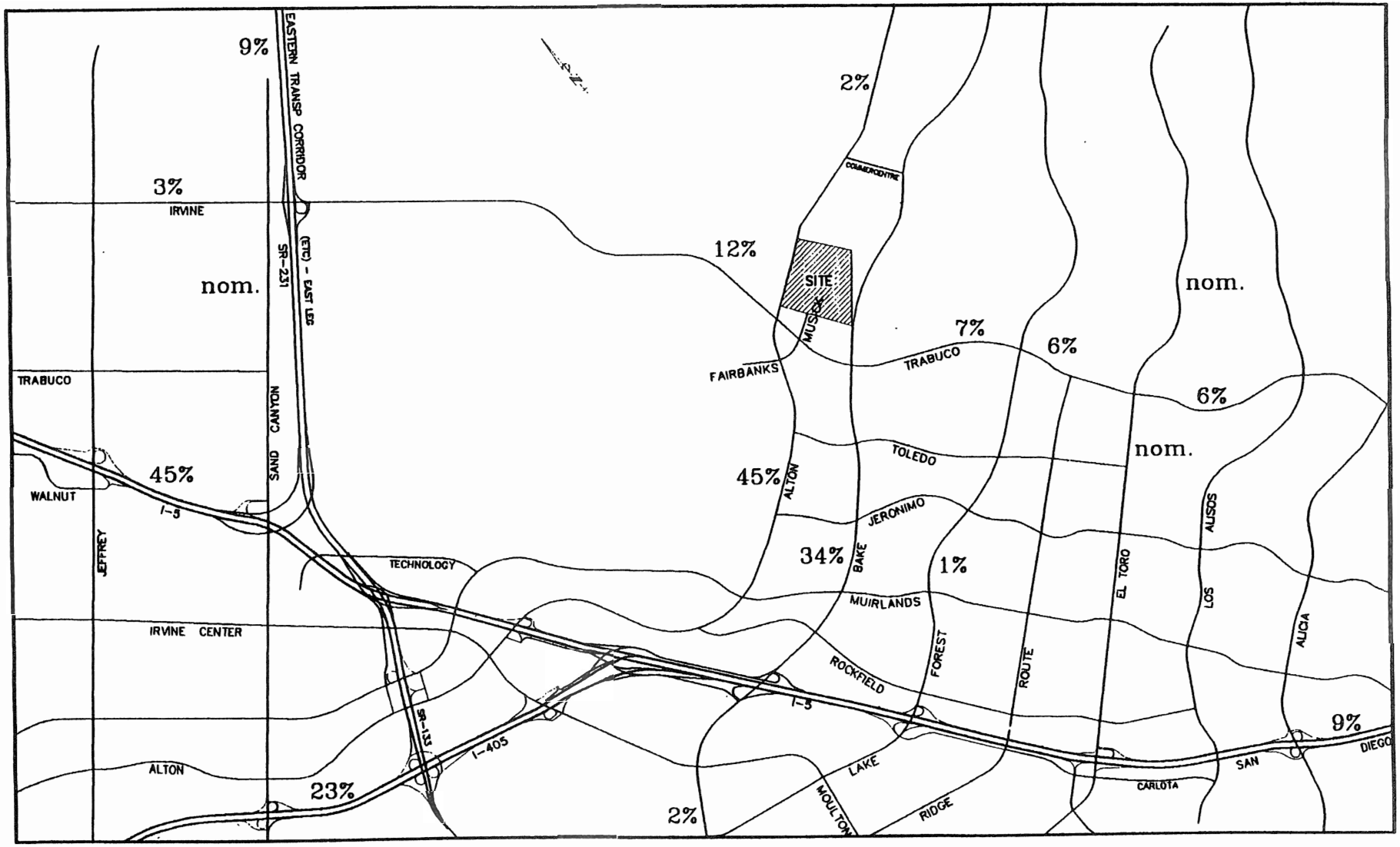
EXHIBIT 29



LONG-RANGE DISTRIBUTION

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EXHIBIT 30

e. **Project Construction**

The project construction is divided into three complexes. The trip generation by complex is summarized in Table 23. As can be seen here, Complex 1 would generate approximately 1,700 average daily vehicle trips, Complex 2 approximately 1,000 trips, and Complex 3 approximately 1,550 trips. This data is given by complex for informational purposes only, since as explained above, both the interim year and long-range impact analyses are based on full project buildout, even though the project construction may be shorter or longer than the interim year time period.

Table 23
Musick Jail Expansion Summary by Complex

	AM Peak Hour			PM Peak Hour			
	In	Out	Total	In	Out	Total	ADT
Existing Trips	49	15	64	19	48	67	1,204
Complex 1 (new trips)							
Jail							
Staff	55	78	133	0	57	57	869
Inmate transportation	1	1	2	1	1	2	8
Visitors	4	0	4	15	15	30	126
Deliveries	1	0	1	0	1	1	12
Total	61	79	140	16	74	90	1,015
Sheriff substation/ICF							
Substation staff	17	15	32	10	9	19	225
Patrol cars	16	15	31	0	11	11	186
ICF staff	35	0	35	8	13	21	255
Total	68	30	98	18	33	51	666
Total Complex 1	129	109	238	34	107	141	1,681

	AM Peak Hour			PM Peak Hour			
	In	Out	Total	In	Out	Total	ADT
Complexes 1 and 2 (new trips)							
Jail							
Staff	75	126	201	0	82	82	1,584
Inmate transportation	5	5	10	5	5	10	40
Visitors	12	0	12	45	45	90	364
Deliveries	2	1	3	1	2	3	35
Total	94	132	226	51	134	185	2,023
Sheriff substation/ICF							
Substation staff	17	15	32	10	9	19	225
Patrol cars	16	15	31	0	11	11	186
ICF staff	35	0	35	8	13	21	255
Total	68	30	98	18	33	51	666
Total Complexes 1 and 2	162	162	324	69	167	236	2,689
Complexes 1 + 2 + 3 (new trips)							
Jail							
Staff	96	217	313	0	114	114	2,475
Inmate transportation	11	12	23	12	11	23	96
Visitors	31	0	31	114	114	228	926
Deliveries	5	4	9	4	5	9	90
Total	143	233	376	130	244	374	3,587
Sheriff substation/ICF							
Substation staff	17	15	32	10	9	19	225
Patrol cars	16	15	31	0	11	11	186
ICF staff	35	0	35	8	13	21	255
Total	68	30	98	18	33	51	666
Total Complex 1 + 2 + 3	211	263	474	148	277	425	4,253
Total Existing Plus New Trips	260	278	538	167	325	492	5,457

5.10.3 Project Impacts Prior to Mitigation

This section presents the impacts of the proposed project for interim year and long-range conditions. For both time frames, project trips were added to the background no-project traffic volumes, and impacts identified according to the performance criteria described above.

a. Interim Year Traffic Impacts

Traffic generated by the proposed project was added to the no-project interim year volumes using the project trip distribution discussed in the previous chapter. As noted above, full project buildout was assumed for this interim year analysis, even though actual project construction may be shorter or longer than the five year time period of the interim year time frame.

Exhibit 31 illustrates interim year no-project average daily traffic (ADT) volumes and Exhibit 32 shows the corresponding with-project volumes. The most notable increase in traffic occurs on Alton Parkway (2,000 ADT), with a lesser increase on Bake Parkway (1,000 ADT).

Arterial volume-to-capacity (V/C) ratios for with and without project conditions are presented in Table 24. Two locations can be considered as being impacted under the performance criteria used for this analysis:

- Alton Parkway between Jeronimo and Muirlands
- Alton Parkway between Muirlands and I-5

Table 24
Interim Year Volume/Capacity Ratio Summary

	Lanes	Capacity	Interim Year Volume	Interim Year V/C	Interim Year With Project Volume	Interim Year With Project V/C	Project Contrib.
IRVINE (CITY/SPHERE)							
Alton w/o Irvine Center	6	54,000	22,000	.41	22,000	.41	.00
Alton w/o I-5	6	54,000	40,000	.74	40,000	.74	.00
Alton e/o I-5	7	63,000	52,000	.83	54,000	.86	.03
Alton s/o Muirlands	6	54,000	49,000	.91*	51,000	.94*	.03
Alton n/o Muirlands	6	54,000	47,000	.87	49,000	.91*	.04
Alton n/o Jeronimo	6	54,000	31,000	.57	33,000	.61	.04
Alton n/o Toledo	6	54,000	21,000	.39	23,000	.43	.04
Alton n/o Trabuco	6	54,000	27,000	.50	27,000	.50	.00
Bake n/o I-5	8	72,000	40,000	.56	41,000	.57	.01
Bake n/o Rockfield	8	72,000	44,000	.61	45,000	.63	.02
Barranca w/o Irvine Center	4	32,000	18,000	.56	18,000	.56	.00
Barranca w/o I-5	4	42,000	24,000	.57	24,000	.57	.00
Barranca e/o I-5	4	42,000	27,000	.64	27,000	.64	.00
Barranca w/o Alton	4	32,000	24,000	.75	24,000	.75	.00

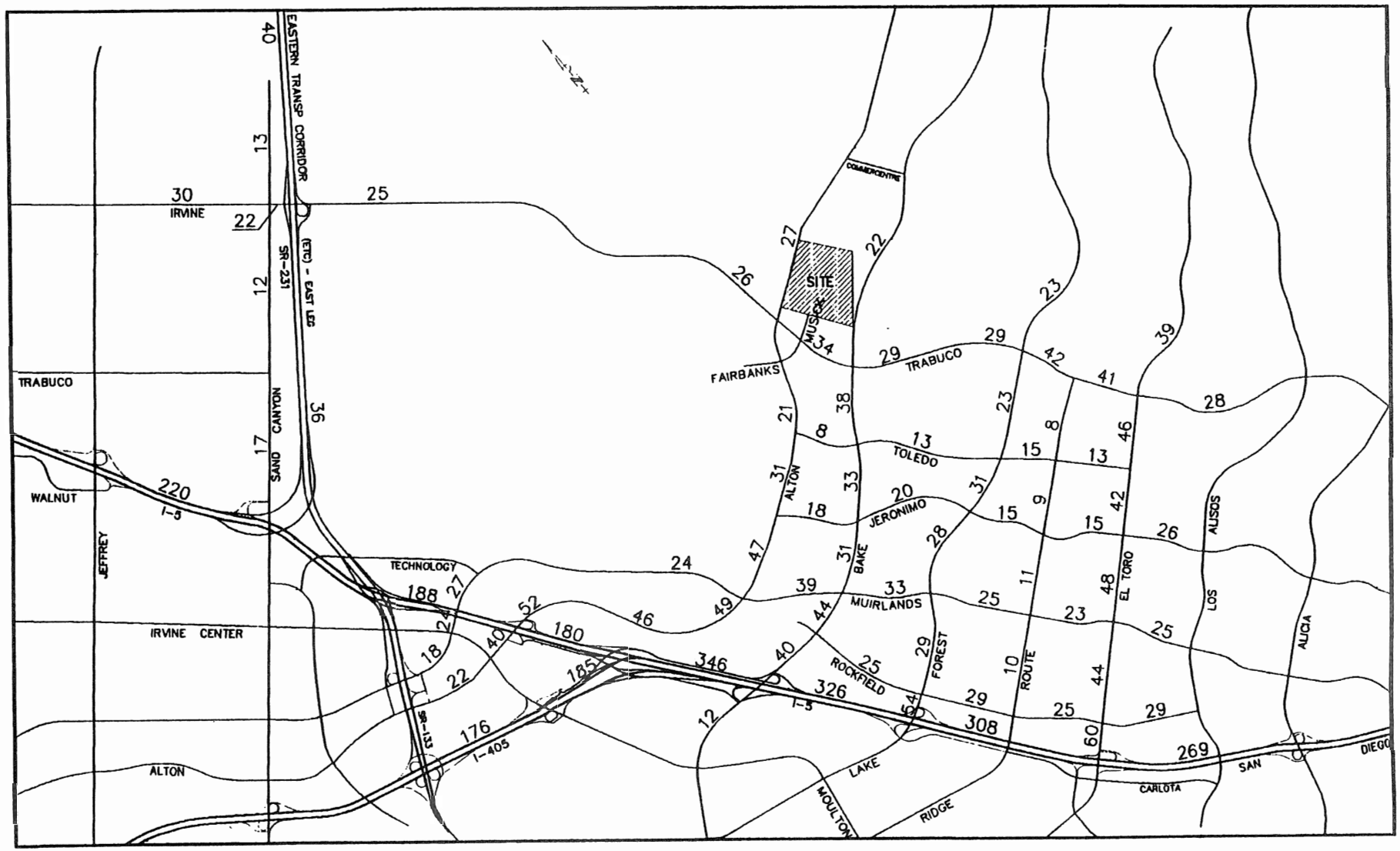
	Lanes	Capacity	Interim Year Volume	Interim Year V/C	Interim Year With Project Volume	Interim Year With Project V/C	Project Contrib.
Irvine w/o Sand Canyon	6	54,000	30,000	.56	30,000	.56	.00
Irvine e/o Sand Canyon	6	54,000	22,000	.41	22,000	.41	.00
Irvine w/o Alton	6	54,000	26,000	.48	26,000	.48	.00
Irvine e/o Alton	6	54,000	34,000	.63	34,000	.63	.00
Jeronimo e/o Alton	4	32,000	18,000	.56	18,000	.56	.00
Muirlands e/o Alton	4	32,000	39,000	1.22*	39,000	1.22*	.00
Sand Canyon n/o Trabuco	6	54,000	12,000	.22	12,000	.22	.00
Sand Canyon n/o Irvine	4	32,000	13,000	.41	13,000	.41	.00
Toledo e/o Alton	4	28,000	8,000	.29	8,000	.29	.00
IRVINE/LAKE FOREST							
Bake n/o Muirlands	6	54,000	31,000	.57	32,000	.59	.02
Bake n/o Jeronimo	6	54,000	33,000	.61	34,000	.63	.02
Bake n/o Toledo	6	54,000	38,000	.70	39,000	.72	.02
Rockfield e/o Bake	4	32,000	25,000	.78	25,000	.78	.00
LAKE FOREST							
Bake n/o Trabuco	4	37,500	22,000	.59	22,000	.59	.00
El Toro n/o Toledo	8	75,000	46,000	.61	46,000	.61	.00
El Toro n/o Trabuco	6	56,300	39,000	.69	39,000	.69	.00
Jeronimo e/o Bake	4	37,500	20,000	.53	20,000	.53	.00
Lake Forest n/o Toledo	6	56,300	23,000	.41	23,000	.41	.00
Lake Forest n/o Trabuco	6	56,300	23,000	.41	23,000	.41	.00
Muirlands e/o Bake	4	37,500	33,000	.88	33,000	.88	.00
Ridge Route n/o Toledo	4	37,500	8,000	.21	8,000	.21	.00
Rockfield e/o Bake	4	32,000	25,000	.78	25,000	.78	.00
Toledo e/o Bake	4	25,000	13,000	.52	13,000	.52	.00
Trabuco e/o Bake	6	56,300	29,000	.52	29,000	.52	.00
Trabuco w/o Lake Forest	6	56,300	29,000	.52	29,000	.52	.00
Trabuco e/o Lake Forest	6	56,300	42,000	.75	42,000	.75	.00
Trabuco e/o Ridge Route	6	56,300	41,000	.73	41,000	.73	.00
Trabuco e/o El Toro	6	56,300	28,000	.50	28,000	.50	.00

* Exceeds LOS "D"

Level of service ranges:

.00 - .60 A
.61 - .70 B
.71 - .80 C
.81 - .90 D
.91 -1 .00 E
Above 1.00 F

The interim year no-project and with-project peak hour intersection capacity utilization (ICU) values are summarized in Table 25 (the ICU calculations are included in the Traffic Analysis included in the Appendices).



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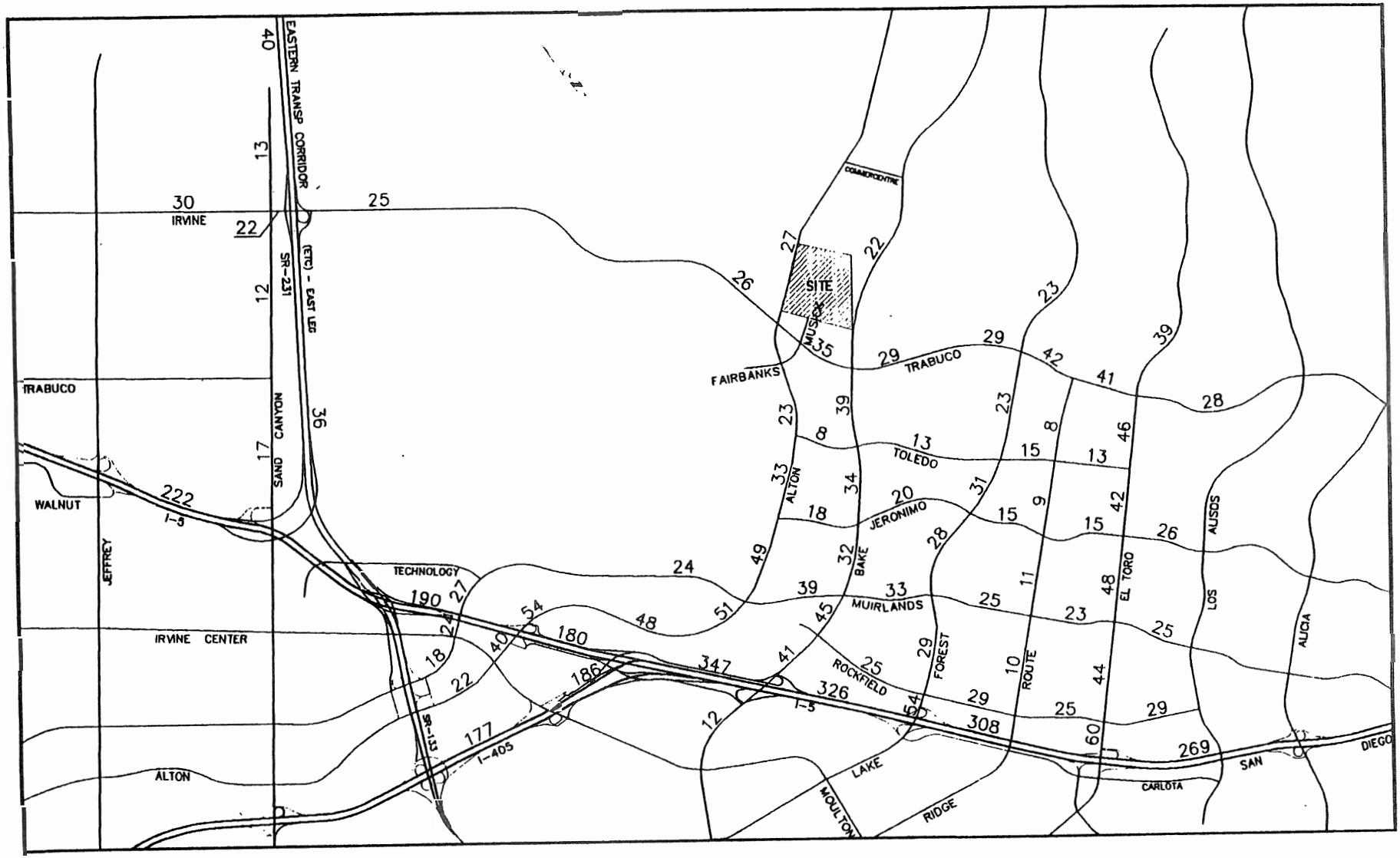
INTERIM YEAR ADT VOLUMES - NO PROJECT

001875 EXHIBIT 31



INTERIM YEAR ADT VOLUMES - WITH PROJECT

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001876 EXHIBIT 32

Table 25
Interim Year ICU Summary

Intersection	Interim Year AM	Interim Year PM	Interim Year W/Project AM	Interim Year W/Project PM
1. Sand Canyon & Irvine	.71	.54	.71	.54
2. ETC E Leg SB Ramps & Irvine	.44	.52	.44	.53
3. ETC E Leg NB Ramps & Irvine	.42	.48	.42	.49
4. Alton & Irvine	.85	.89	.95*	.95*
5. Musick/Fairbanks & Irvine	.67	.81	.67	.82
6. Bake & Irvine/Trabuco	.70	.88	.72	.90
7. Lake Forest & Trabuco	.70	.70	.71	.70
8. Ridge Route & Trabuco	.55	.74	.55	.74
9. El Toro & Trabuco	.86	.83	.86	.84
10. Alton & Toledo	.49	.71	.52	.73
11. Bake & Toledo	.69	.77	.71	.78
12. Alton & Jeronimo	.75	.67	.78	.68
13. Bake & Jeronimo	.68	.70	.69	.71
14. Alton & Muirlands/Barranca	.88	.81	.90	.82
15. Bake & Muirlands	.68	.77	.69	.78
17. Bake & Rockfield	.55	.66	.56	.67
18. Barranca & Irvine Center	.68	.56	.69	.56
19. Irvine Center & Alton	.70	.89	.71	.89
20. I-5 NB Ramps & Alton	.58	.58	.60	.60
21. Enterprise & Alton	.55	.72	.58	.72
22. Bake & I-5 NB Ramps	.35	.63	.36	.64
23. Bake & I-5 SB Off-Ramp	.40	.75	.40	.77

* Exceeds LOS "D"

Level of service ranges:
.00 - .60 A
.61 - .70 B
.71 - .80 C
.81 - .90 D
.91 - 1.00 E
Above 1.00 F

The ICU values are based on the assumed interim year circulation system discussed herein. As this table indicates, the only project impact is at the intersection of Alton Parkway and Irvine Boulevard which is projected to operate at LOS "E" with the addition of project-generated traffic. Potential improvements for this intersection are presented later in this section.

b. Long Range Impacts

Project-generated traffic was added to the long-range volumes based on the long-range project trip distribution presented above to produce long-range with-project volumes. The long-range no-project and with project ADT volumes are illustrated in Exhibit 33 and

Exhibit 34, respectively. Increases due to the proposed project can be seen on Alton Parkway (2,000 ADT) and on Bake Parkway (1,000 ADT).

Arterial V/C ratios for with and without project conditions are summarized in Table 26. Arterial links impacted under the performance criteria used here are as follows:

- Alton Parkway, Jeronimo to Muirlands
- Alton Parkway, Rockfield to I-5

Table 26
Long-Range Volume/Capacity Ratio Summary

	Lanes	Capacity	Long-Range Volume	V/C	Long-Range With Project Volume	V/C	Project Contrib
IRVINE (CITY/SPHERE)							
Alton w/o Irvine Center	6	54,000	29,000	.54	29,000	.54	.00
Alton w/o I-5	6	54,000	43,000	.80	43,000	.80	.00
Alton e/o I-5	8	72,000	62,000	.86	64,000	.89	.03
Alton s/o Rockfield	6	54,000	56,000	1.04*	58,000	1.07*	.03
Alton s/o Muirlands	6	54,000	46,000	.85	48,000	.89	.04
Alton n/o Muirlands	6	54,000	52,000	.96*	54,000	1.00*	.04
Alton n/o Jeronimo	6	54,000	36,000	.67	38,000	.70	.03
Alton n/o Toledo	6	54,000	25,000	.46	27,000	.50	.04
Alton n/o Trabuco	6	54,000	33,000	.61	33,000	.61	.00
Bake n/o I-5	8	72,000	49,000	.68	50,000	.69	.01
Bake n/o Rockfield	8	72,000	53,000	.74	54,000	.75	.01
Barranca w/o Irvine Center	4	32,000	20,000	.63	20,000	.63	.00
Barranca w/o I-5	4	42,000	28,000	.67	28,000	.67	.00
Barranca e/o I-5	4	42,000	29,000	.69	29,000	.69	.00
Barranca w/o Alton	4	32,000	26,000	.81	26,000	.81	.00
Irvine w/o Sand Canyon	6	54,000	35,000	.65	35,000	.65	.00
Irvine e/o Sand Canyon	6	54,000	33,000	.61	33,000	.61	.00
Irvine e/o ETC East Leg	6	54,000	34,000	.63	35,000	.65	.02
Irvine w/o Alton	6	54,000	36,000	.67	37,000	.69	.02
Irvine e/o Alton	6	54,000	42,000	.78	44,000	.81	.03
Jeronimo e/o Alton	4	32,000	22,000	.69	22,000	.69	.00
Muirlands e/o Alton	4	32,000	31,000	.97*	31,000	.97*	.00
Sand Canyon n/o Trabuco	6	54,000	20,000	.37	20,000	.37	.00
Sand Canyon n/o Irvine	4	32,000	18,000	.56	18,000	.56	.00
Toledo e/o Alton	4	28,000	8,000	.29	8,000	.29	.00
IRVINE/LAKE FOREST							
Bake n/o Muirlands	6	54,000	38,000	.70	39,000	.72	.02
Bake n/o Jeronimo	6	54,000	39,000	.72	40,000	.74	.02
Bake n/o Toledo	6	54,000	44,000	.81	45,000	.83	.02
Rockfield e/o Bake	4	32,000	23,000	.72	23,000	.72	.00

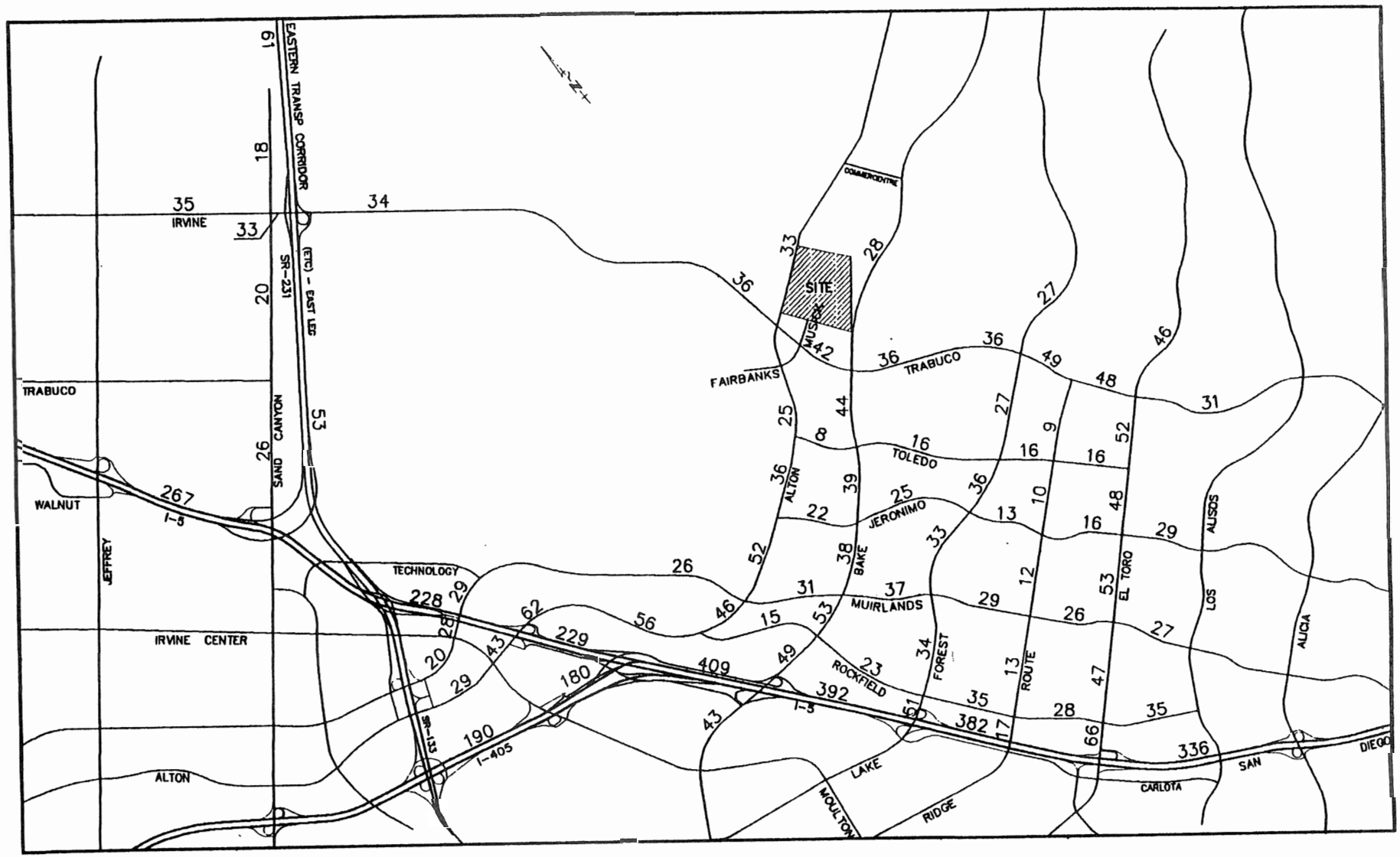
	Lanes	Capacity	Long-Range Volume	V/C	Long-Range With Project Volume	V/C	Project Contrib
LAKE FOREST							
Bake n/o Trabuco	4	37,500	28,000	.75	28,000	.75	.00
El Toro n/o Toledo	8	75,000	52,000	.69	52,000	.69	.00
El Toro n/o Trabuco	6	56,300	46,000	.82	46,000	.82	.00
Jeronimo e/o Bake	4	37,500	25,000	.67	25,000	.67	.00
Lake Forest n/o Toledo	6	56,300	27,000	.48	27,000	.48	.00
Lake Forest n/o Trabuco	6	56,300	27,000	.48	27,000	.48	.00
Muirlands e/o Bake	4	37,500	37,000	.99*	37,000	.99*	.00
Rockfield e/o Alton	4	32,000	15,000	.47	15,000	.47	.00
Rockfield e/o Bake	4	32,000	23,000	.72	23,000	.72	.00
Toledo e/o Bake	4	25,000	16,000	.64	16,000	.64	.00
Trabuco e/o Bake	6	56,300	36,000	.64	36,000	.64	.00
Trabuco w/o Lake Forest	6	56,300	36,000	.64	36,000	.64	.00
Trabuco e/o Lake Forest	6	56,300	49,000	.87	49,000	.87	.00
Trabuco e/o Ridge Route	6	56,300	48,000	.85	48,000	.85	.00
Trabuco e/o El Toro	6	56,300	31,000	.55	31,000	.55	.00

* Exceeds LOS "D"

Level of service ranges:

.00 - .60 A
.61 - .70 B
.71 - .80 C
.81 - .90 D
.91 -1 .00 E
Above 1.00 F

The long-range no-project and with project peak hour ICU values are summarized in Table 27 (the ICU calculations are included in the Traffic Analysis included in the Appendices). As this ICU table indicates, five intersections are projected to operate at LOS "E" or worse under long-range with project conditions. Of these five intersections, four are impacted by the proposed project (as noted above, for this analysis, a significant project impact is defined as an increase of .01 or more in the ICU value at an intersection which reaches LOS "E" or worse with the addition of project traffic). Potential improvements which mitigate project impacts are discussed in the next section.



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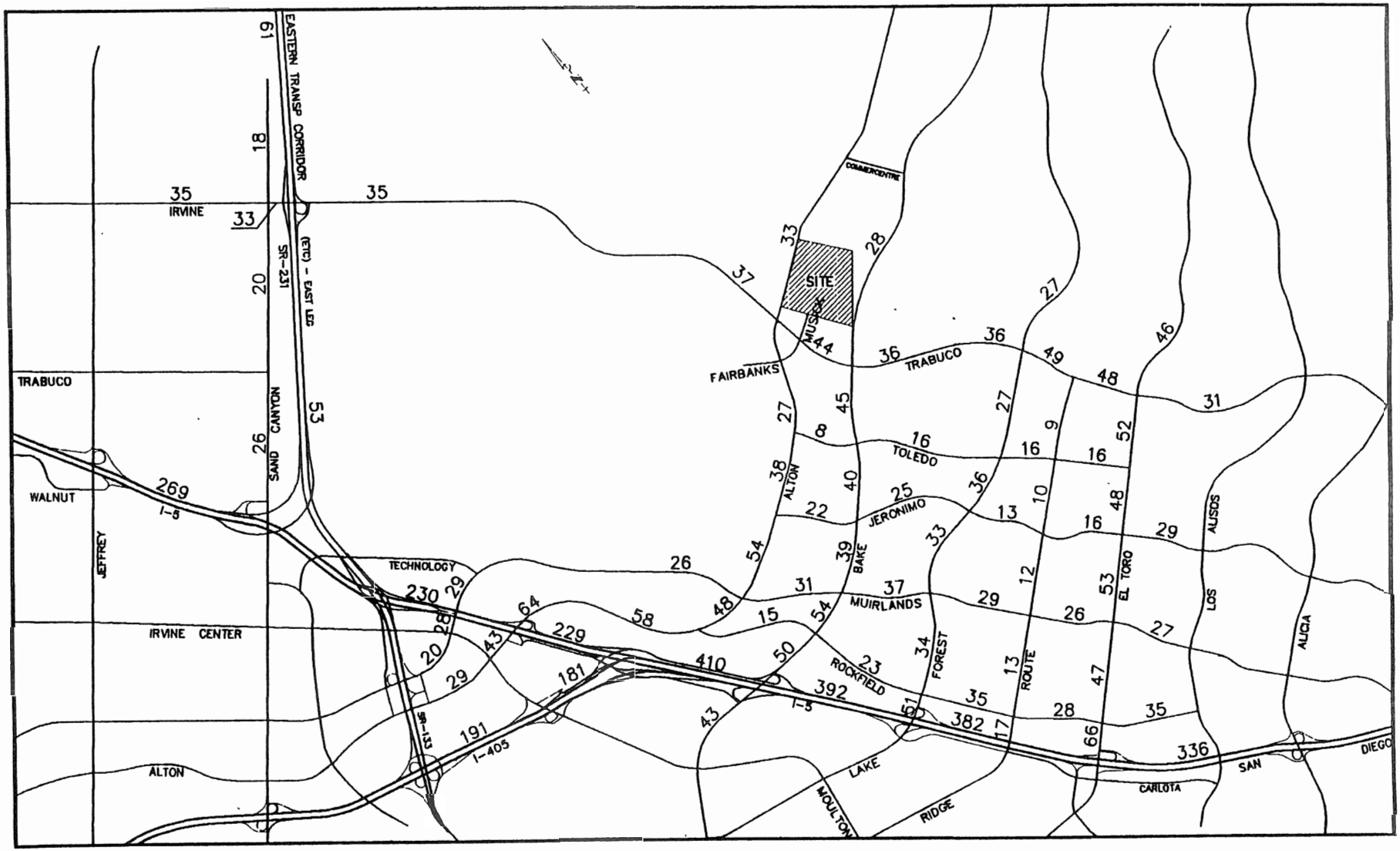
LONG-RANGE ADT VOLUMES - NO PROJECT

001080 EXHIBIT 33



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LONG-RANGE ADT VOLUMES - WITH PROJECT

001681 EXHIBIT 34

Table 27
Long-Range ICU Summary

Intersection	Long-Range AM	Long-Range PM	Long-Range W/Project AM	Long-Range W/Project PM
1. Sand Canyon & Irvine	.63	.58	.64	.58
2. ETC E Leg SB Ramps & Irvine	.59	.67	.60	.67
3. ETC E Leg NB Ramps & Irvine	.59	.60	.59	.60
4. Alton & Irvine	.83	.96*	.86	.99*
5. Musick/Fairbanks & Irvine	.75	.94*	.76	.96*
6. Bake & Irvine/Trabuco	.82	1.02*	.83	1.03*
7. Lake Forest & Trabuco	.78	.82	.78	.83
8. Ridge Route & Trabuco	.63	.85	.63	.86
9. El Toro & Trabuco	.95*	.94*	.95*	.94*
10. Alton & Toledo	.68	.87	.70	.88
11. Bake & Toledo	.71	.84	.72	.85
12. Alton & Jeronimo	.78	.76	.80	.78
13. Bake & Jeronimo	.89	.77	.91*	.78
14. Alton & Muirlands/Barranca	.84	.80	.86	.81
15. Bake & Muirlands	.78	.70	.79	.71
16. Alton & Rockfield	.85	.81	.88	.81
17. Bake & Rockfield	.72	.80	.73	.80
18. Barranca & Irvine Center	.70	.67	.70	.68
19. Irvine Center & Alton	.78	.80	.79	.80
20. I-5 NB Ramps & Alton	.71	.83	.73	.84
21. Enterprise & Alton	.55	.87	.56	.87
22. Bake & I-5 NB Ramps	.83	.61	.83	.61
23. Bake & I-5 SB Off-Ramp	.54	.75	.55	.76

* Exceeds LOS "D"

Level of service ranges:
.00 - .60 A
.61 - .70 B
.71 - .80 C
.81 - .90 D
.91 - 1.00 E
Above 1.00 F

c. Arterial Highway Link Impacts

Highway intersections have less capacity than the highway links connecting the intersections due to conflicting traffic movements in the intersections. Therefore, most traffic analyses focus on intersection impacts because they are the critical element of the highway capacity management. In general, traffic performance on highway links will always be as good or better than at the intersections connecting the links. Therefore, if the intersections at the each end of a link operate at acceptable levels of service, then the link is generally thought to operate at an acceptable level. For this reason, the most common LOS standard is for intersections and some jurisdictions do not have a standard for link

capacity. Nonetheless the following section analyzes the project impacts on highway link capacities.

The ADT on certain sections or links of Alton Parkway exceeded the ADT capacity of the link and would measurably impacted by the project. Because of the generalized rates of ADT capacity values, the approach taken to evaluating these potential impacts is to examine the peak hour ICUs at the ends of the link (i.e., at the intersections at each end of the link). Based on this methodology, the analysis concludes that the deficiency is hypothetical rather than actual because the intersections at each end of the links operate at an adequate levels of service.

Table 28 summarizes the impacted links and shows the relevant ICU values.

Table 28
Link Deficiency Analysis

Location	North Intersection ICU (Int #)	AM	PM	South Intersection ICU (Int #)	AM	PM
INTERIM YEAR						
Alton, Jeronimo to Muirlands	(12)	.78	.68	(14)	.90	.82
Alton, Muirlands to I-5	(14)	.90	.82	(20)	.60	.60
LONG-RANGE						
Alton, Jeronimo to Muirlands	(12)	.80	.78	(14)	.86	.81
Alton, Rockfield to I-5	(16)	.88	.81	(20)	.73	.84

Since all intersections operate at LOS "D" or better (ICU <.90), it can be concluded that no improvements would be needed for these links.

The deficient links are located in the City of Irvine. The City of Irvine has a deficient link analysis methodology for links which operate at LOS "E" or worse. For links which operate above .90 but less than .95 the intersections at the ends of the link are examined as outlined above. Therefore, the deficient links under interim year conditions operate acceptably.

For links which operate above .95, the peak hour link V/C is utilized. A project has an impact if project-related traffic increases the peak hour link V/C by .03 or more. A peak hour link analysis was performed for the long-range conditions. Table 29 summarizes the results of the long-range peak hour link analysis (calculation sheets are located in the Traffic Analysis included in the appendices). As this table shows, the proposed project has no significant impact on these links.

Table 29
Long-Range LOS Summary - With Mitigation

Intersection	No-Project Long-Range AM	LOS	PM	LOS	Long-Range With Project AM	LOS	PM	LOS	Long-Range With Project With Mitigation AM	LOS	PM	LOS
4. Alton & Irvine	.83	D	.96*	E	.86	D	.99*	E	.86	D	.88	D
5. Musick & Irvine	.75	C	.94*	E	.76	C	.96*	E	.72	C	.93*	E
6. Bake & Irvine/Trabuco	.82	D	1.02*	F	.83	D	1.03*	F	.81	D	.81	D
13. Bake & Jeronimo	.89	D	.77	C	.91*	E	.78	C	.90	D	.78	C

d. Circulation and Access

The following section analyses the project impacts on traffic circulation from the arterial highway system into the project site. The project would be served by four vehicular access points to the highway system, two new driveways on Alton Parkway, an existing driveway on Bake Parkway, and the existing driveway on Musick Drive. The first three access points would form intersections with arterial highways. The existing entrance at Musick Drive is an extension of the street which will serve staff and deliveries. For this reason, no traffic signalization is required. Musick Drive adjacent to the project site is located in the City of Irvine and, therefore, any improvements to Musick Drive within the City's boundaries would require a City encroachment permit. No improvements within the City boundaries are currently proposed, but the County will need to coordinate with the City regarding project phasing and construction impacts on Musick Drive.

The two entrances on Alton Parkway will form "T" intersections. The main entrance on Alton Parkway, located about 1,440 feet easterly of Irvine Boulevard, would include left-turns into and out of the proposed project to serve visitors, inmate buses and staff. A secondary entrance on Alton Parkway, located about 600 feet easterly of Irvine Boulevard to serve the maintenance yard parking lot, would be limited to right-turns in and right-turns out only. For this reason, no traffic signal or median opening is required, and stop signs at the driveway exit will serve the project. The existing driveway on Bake Parkway would be enhanced to serve the Sheriff's station, employees and the ICF. This driveway forms a four-way intersection on Bake Parkway with Andaman Sea Drive on the south. Andaman Sea Drive is an existing street which will serve future business park uses in the Pacific Commercentre. This area is currently undeveloped. The following discussion analyzes the circulation impacts at the Alton Parkway and Bake Parkway entrances to determine the need (i.e., the "warrants") for traffic controls such as traffic signals to mitigate project impacts.

Two methods of determining the need or warrants for traffic controls are typically applicable to situations such as this, one for "minimum vehicle traffic", and a second for "interruption of continuous traffic". To satisfy the Minimum Vehicular Traffic signal

warrant, the major street (i.e., Alton and Bake Parkway) must carry at least 6,720 ADT (both directions) and the minor street must carry at least 1,680 ADT (one direction only). The project entrance on Alton Parkway will carry approximately 1,200 ADT in one direction, which is not sufficient to satisfy the Minimum Vehicular Traffic warrant. The project entrance on Bake Parkway will carry approximately 300 ADT in one direction and also does not satisfy the Minimum Vehicular Traffic warrant.

The Interruption of Continuous Traffic signal warrant is satisfied if the major street carries at least 10,080 ADT (total of both directions) and the minor street carries at least 850 ADT in one direction. Since the project entrance on Alton Parkway would carry approximately 1,200 ADT in one direction and Alton Parkway is projected to carry 27,000 ADT under interim year conditions, the Interruption of Continuous Traffic warrant is satisfied at the jail entrance on Alton Parkway. This signalized entrance would be located approximately 350 ft. westerly of a future "T" entrance to the water storage facility on the northerly side of Alton Parkway. The water storage facility would not generate sufficient traffic to warrant a signal, and the distance between the driveways is sufficient, considering the future traffic demand at the entrances. Both of the Alton Parkway project entrances are located in the unincorporated area and therefore no encroachment or similar permits would be required from the City of Irvine. However, the site and areas to the north are within the City of Irvine's sphere of influence, and the adjoining areas to the northwest and west are within the City's boundaries. Therefore, the County will need to coordinate with the City on highway and driveway improvement phasing and construction.

The project volumes at the project entrance on Bake Parkway do not, however, satisfy the Interruption of Continuous Traffic warrant. Future development in the Pacific Commercentre may be expected to generate sufficient trips on Andaman Sea Drive to warrant installation of a traffic signal at the Bake Parkway intersection. The County will need to coordinate with the City of Lake Forest on the need, phasing and share of costs if such a signal is required. The existing street improvements at the Bake Parkway entrance are adequate to accommodate forecasted peak-hour volumes.

e. Compliance with Congestion Management and Measure M Programs

The following summarizes a report by GSL Associates dated August 16, 1996 included in Appendix J. The Orange County implementation of the statewide Congestion Management Program (CMP) and the countywide Measure M Growth Management Program (GMP) requires local jurisdictions to understand how the additional traffic generated by a proposed development project will impact CMP and Measure M levels of service targets upon the Orange County Master Plan of Arterial Highways. The programs further require an assessment of traffic demand in relation to circulation infrastructure capacity, to insure that infrastructure is logically added as development proceeds so that roadway improvements are in balance with projected demand.

The County of Orange has adopted several programs to incorporate CMP and GMP requirements into its development review process, for projects located within the unincorporated area of the County of Orange.

These include:

- a Growth Management Plan Element, to ensure that the planning, management and implementation of traffic improvements and public facilities are adequate to meet the current and projected needs of Orange County;

- a Trip Reduction and Travel Demand Ordinance, to mitigate the impacts that development projects may have on transportation mobility, congestion and air quality; and,

- a Growth Management Plan Transportation Implementation Manual, which describes how the general traffic policies of the Orange County Growth Management Plan Element are to be implemented on a site-specific basis.

The Orange County CMP identifies a traffic generation threshold from which to assess a proposed development project's traffic impacts upon the Congestion Management Program Highway System (CMPHS). The threshold is 2,400 Average Daily Trips (ADT), regardless of where the project is located. For developments which directly access the CMPHS, the threshold for requiring a traffic impact analysis is 1,600 ADT. The Orange County Measure M Growth Management Program recommends that the same ADT threshold be utilized to assess Measure M traffic impacts upon the Orange County Master Plan of Arterial Highways (MPAH). Since the trip generation of the proposed project triggers the 2,400 ADT threshold for a CMP and GMP traffic analysis, the applicant is required to identify whether the additional trips generated by the proposed project allow levels of service standards/targets to be maintained upon the CMP Highway System (CMPHS) and the Orange County Master Plan of Arterial Highways (MPAH).

In the study area, components of the CMPHS include:

- Trabuco Road
- El Toro Road
- Irvine Center Drive
- Sand Canyon Avenue
- Interstate 5

El Toro Road at Trabuco Road, under the jurisdiction of the City of Lake Forest, is a designated CMP intersection. Its 1991 baseline performance was a Level of Service "F" in the AM peak, and a Level of Service "C" in the PM peak.

In compliance with the Orange County CMP requirements, the El Toro Road/Trabuco Road intersection is required to maintain the following performance standard:

- AM: LOS "F" with a volume to capacity ratio no greater than 1.13
- PM: LOS "E" with a volume to capacity ratio no greater than 1.00.

In 1996, the Orange County Transportation Authority (OCTA) conducted traffic counts for all CMPHS monitored intersections, and compared these 1996 levels of service with the 1991 baseline LOS. According to these counts, the El Toro Road/Trabuco Road CMP intersection currently operates at a Level of Service "B" (V/C of 0.61) in the AM peak period, and Level of Service "C" (V/C of 0.72) in the PM peak period. These levels of service are consistent with the levels of service reported by the project traffic study.

The additional traffic generated by full buildout of the project, when added to existing and approved development in the study area, will not cause levels of service at the El Toro Road/Trabuco Road intersection to exceed its established CMP LOS standard in the interim period or at General Plan buildout.

The Orange County Measure M Growth Management Program (GMP) requires that the general target goal for the Orange County Master Plan of Arterial Highways (MPAH) be LOS D for arterial intersections under the sole control of the jurisdiction, except where a worse LOS standard has been established by the local jurisdiction in which the intersection is located. Local jurisdictions can adopt as "deficient intersections" any existing intersection not meeting the established level of service standard, where there are seemingly no opportunities for making any conventional geometric improvements within a current, seven-year Measure M capital improvement program. Jurisdictions may also establish a level of service standard worse than LOS D for certain intersections in urbanized areas.

Measure M arterials in the project study area include:

- Irvine Blvd/Trabuco Road (also a CMPHS roadway)
- Toledo Way
- Jeronimo Road
- Barranca Parkway/Muirlands Blvd.
- Rockfield Blvd.
- Irvine Center Drive/Moulton Parkway
- Sand Canyon Avenue (also a CMPHS roadway)
- Alton Parkway
- Bake Parkway
- Lake Forest
- Ridge Route Drive
- El Toro Road (also a CMPHS roadway)

Two intersections along Bake Parkway are currently operating at a level of service worse than the Measure M performance standard of LOS "D":

- Bake Parkway at Irvine Blvd/Trabuco
- Bake Parkway at Jeronimo

While the traffic study reflects existing operations on the basis of 1996 traffic counts, GMA 9 has also identified the intersection of Barranca Parkway/Muirlands Blvd at Alton Parkway as an additional deficient intersection in the project study area. This intersection

is reported with a 1995 ICU of 0.98 (Level of Service "E"). GMA 9 has identified an improvement program of providing additional turn lanes at the intersection to improve existing levels of service. Design work for the proposed improvement is planned to commence in Fiscal Year 1998-99, with right-of-way and construction in Fiscal Year 1999-2000. At present, the improvement is partially funded with Measure M GMA 9 transportation funds.

For Interim conditions, all Measure M intersections in the study area will operate within the Measure M LOS "D" performance standard, except for:

- Alton Parkway at Irvine Blvd., which is projected to operate at LOS "E" with the addition of project-generated traffic.

In conformance with Measure M Development Mitigation Program requirements, circulation improvements have been identified in the project traffic study to accommodate the increased traffic and maintain Measure M levels of service goals at the Alton Parkway/Irvine Blvd. intersection. At present, Alton Parkway terminates at Irvine Blvd. In conjunction with project development, Alton Parkway will be extended northerly to a new signalized intersection at Alton and the Musick Jail Facility entrance. The extension of Alton Parkway from Irvine Blvd. to the Foothill Transportation Corridor (FTC) is programmed to completed (see discussion below) prior to or concurrent with opening of the Alton Pkwy. entrance. If this does not occur, however, the County will construct a driveway from the Alton Parkway/Irvine Blvd. intersection to the project entrance. These improvements will be constructed and be operational upon occupancy of complex 1, 2 or 3 whichever occurs first. The project also includes construction of a second southbound left turn lane from Alton Parkway onto Irvine Blvd, and restriping a westbound right-turn lane from Alton Parkway onto Irvine Blvd. With these intersection improvements, the level of service of Alton Parkway at Irvine Blvd. will be mitigated from LOS "E" to LOS "D", and through this improvement, meet the established, Measure M performance standard of LOS "D".

The extension of Alton Parkway as a six-lane facility to the FTC is programmed as a component of the Foothill Circulation Phasing Plan (FCPP), with funding for the roadway extension secured through an adopted county fee program. The transportation improvements identified in the traffic study to mitigate the Musick Jail expansion project, will be completed upon initial project occupancy, thereby allowing the needed roadway improvements to be in balance with the projected demand.

Regarding long-range impacts, five intersections are projected to exceed Measure M performance standards in Year 2020:

- Alton Parkway at Irvine Blvd.*
- Musick/Fairbanks at Irvine Blvd.*
- Bake Parkway at Irvine/Trabuco*
- El Toro Road at Trabuco*
- Bake Parkway at Jeronimo

Four of the five intersections, referenced above with asterisks, are projected to exceed Measure M performance standards even in absence of the project. El Toro Road at Trabuco Road, as discussed above, is a designated CMP Highway System intersection, with baseline levels of service established in concert with state legislation. As referenced above, the El Toro Road/Trabuco Road intersection is required to maintain an AM performance standard of LOS "F" (V/C no greater than 1.13), and a PM performance standard of LOS "E" (V/C no greater than 1.00). At long-range buildout with the project traffic, these CMP performance standards will be maintained. In addition, the intersection of Musick/ Fairbanks at Irvine Boulevard is projected to operate at LOS "E" during the PM peak hour even after implementation of proposed mitigation. However, the improvements identified herein for this intersection more than mitigate the project impacts.

The proposed project would be built out by the Interim Year scenario, and identified improvements will meet Measure M levels of service standards. This meets the Measure M Growth Management Program requirement of insuring that new development is phased in accordance with needed circulation improvements. Measure M's Development Mitigation Program also recognizes that new development can contribute to longer-range transportation improvements necessary to support local jurisdiction's implementation of their respective General Plan land use programs. The establishment and operation of the aforementioned Growth Management Area (GMA) forums, and the creation of areawide fee programs, are mechanisms which have been established, pursuant to Measure M provisions, to address regional transportation improvements within a multi-jurisdictional framework. In concert with Measure M requirements, project includes a mitigation measure that requires the County pay this public facility's pro-rata share of required transportation improvements necessary to service the study area and maintain levels of service standards. This mitigation measure is consistent with guidelines for establishing a traffic mitigation program for areas within GMAs where improvements are needed, but are not included or addressed through existing mitigation mechanisms.

The Musick Jail expansion site is located within the adopted area of benefit of three transportation fee programs:

- the Foothill Circulation Phasing Program (FCPP);
- the Foothill/Eastern Transportation Corridor Road Fee Program; and,
- the Santiago Road Fee Program.

However, each of these fee programs exempts "government-owned facilities or utilities from payment of fees to the extent that the facilities will not be used for generating revenue or commercial purposes. Examples of exempt public uses are city halls, park buildings, and other public buildings."

Regarding Transportation Demand Management (TDM) provisions of the Congestion Management Program and Measure M Growth Management Program, the project is subject to the provisions of the County of Orange TDM ordinance because the project generates greater than 100 employees on-site. The Orange County Transportation Authority (OCTA) is currently reviewing and will assess public transit service to the site from the future extension of Alton Parkway and Bake Parkway. Bus turn-out aprons

already exist on both sides of Bake Parkway at the project site driveway. OCTA will also determine if bus stops should also be provided, if bus service is extended along Alton Parkway. In conjunction with the extension of Alton Parkway and the project, the County proposes to install:

- Bus turnouts on Alton Parkway at the project entrance;
- A sidewalk along the Alton Parkway extension, fronting the project site; and,
- Sidewalks along the project entrance off Alton Parkway.

These features will accommodate direct, transit accessibility to the facility's Visitor Center.

The CMP requires the traffic impact analysis compare the land use or socioeconomic data used in the analysis with the data from the OCP-92 data base. The Orange County CMP also requires that there be a reconciliation of any major differences between the two data bases. The project traffic analysis is based on the OCP-92 data base and was conducted in compliance with the provisions of the Orange County CMP Traffic Model Data Consistency Requirements.

f. Circulation Phasing

The phasing of arterial highway and street improvements in conjunction with the project development is discussed above. As noted above, all existing access to the project site is via Musick Drive, although there is a driveway entrance constructed at Bake Parkway. During construction of the first phase of development, the Musick Drive entrance will remain the entrance for inmate buses, employees and visitors. Therefore, no change in impacts is expected. Construction vehicles will enter the site principally via Alton Parkway, but secondary access may be provided via Musick Drive and Bake Parkway especially for buildings proposed adjacent to these entrances. Access to Alton Parkway Construction vehicle traffic is not expected to interfere with the water storage facility and agricultural uses located along Alton Parkway near the site. Spectrum IV development does not access Alton Parkway. The first phase of construction will include installation of the Alton Parkway driveway when the initial inmate housing complexes are opened, and opening of the existing Bake Parkway driveway when the Sheriff's Station and ICF are initially occupied.

g. Off-Street Parking

The proposed project would be served by 36 overlapping shifts of Sheriff's Department, County and contract employees. Depending upon the division, shifts may be 8, 9 and 10 hour shifts. Based on the employee shift data in Exhibit 8a and Exhibit 8b and visitor trip estimates provided by the Sheriff's Department, this section estimates the peak hour parking demand for employees, visitors and other parking needs; and compares these estimates to the parking spaces provided on-site for each element of the project. For purposes of this analysis, it is assumed that one parking space would be required for every

1.1 employee on the site during the peak parking period to account for transit and carpooling trips, and that the peak hour for visitors would overlap the peak hour for employee parking demand. No deduction is taken for lunch or other off-site activities (off-site meetings, classes, etc.).

For employee parking, the peak period for parking would occur in the early afternoon, between 2:00 PM and 3:00 PM. This is generally true for each phase and build-out of the project. Note that the peak employee demand is limited to about one hour. Prior to this hour demand is reduced by about 25% and after this one-hour period demand falls by about 35%.

Based on these assumptions, Complex 1 in Exhibit 8a and Exhibit 8b would require a peak of approximately 325 employee spaces for Complex 1, 115 spaces for visitors and 140 spaces for existing employees for a total of 580 spaces. A parking garage for 600 spaces is proposed to meet this demand.

For the Sheriff's Station and ICF, approximately 85 spaces would be required for the Station employees, and 150 spaces for the ICF and visitors in the peak hour for a total of 235 spaces. A parking garage with 250 spaces and surface parking lots with approximately 130 spaces are provided near the Station and ICF to meet this demand. The excess of 145 spaces are available in the peak hour for patrol vehicles, other Sheriff vehicles and ICF vans and vehicles.

For Complex 2, an additional 285 spaces for employees and 90 spaces for visitors would be required in the peak hour for a cumulative total (including Complex 1) of 955 spaces near Complexes 1 and 2 (excluding the Station and ICF). An additional parking garage is proposed adjacent to Complex 2 with 925 spaces to accommodate this demand. Total spaces available to Complexes 1 and 2 would be 1,525 if both parking garages were constructed (excluding 380 spaces at the Sheriff's Station and ICF).

For Complex 3, an additional 320 spaces for employees and 210 spaces for visitors would be required in the peak hour for a cumulative total (including Complexes 1 and 2) of 1,480 spaces (excluding the Sheriff Station and ICF). As noted above, 1,525 spaces would be available in two parking garages to meet this peak hour demand. Total buildout peak hour demand would be approximately 1,715 spaces and total parking spaces available would be 1,905, which provides an 11% buffer over the peak hour demand.

Sheriff buses and vans may be parked over-night at the project site. Because there are no visitors and the number of employees is greatly reduced at night, there would be an excess of parking spaces to accommodate these vehicles overnight.

5.10.4 Mitigation Measures

For traffic impacts, one intersection under interim year conditions and four intersections under long-range conditions are identified as being impacted by the proposed project. The following mitigation measures address these impacts:

45. *Prior to or concurrent with the occupancy of the first phase of the project, the Director of Public Works shall cause to be constructed or installed:*

    a. *Two south-bound left-turn lanes and one west-bound right-turn lane at the intersection of Alton Parkway and Irvine Blvd.*

    b. *A traffic signal at the Alton Parkway project entrance to Complexes 1 and 2.*

46. *Prior to or concurrent with the occupancy of the last phase of the project, the Director of Public Works shall negotiate agreements with the Cities of Irvine and Lake Forest, as applicable, to ensure that the County provides the project's pro rata share of the costs of the following improvements:*

    a. *Alton Parkway/Irvine Blvd: Convert the 3rd northbound through lane to a shared through lane/right-turn lane.*

    b. *Musick Dr./Irvine Blvd: Add a northbound right-turn lane.*

    c. *Bake Pkwy./Irvine Blvd: Add a northbound right-turn lane, and convert the 3rd northbound through lane to a shared through/right-turn lane.*

    d. *Bake Pkwy./Jeronimo: Provide an eastbound right-turn overlap signal phase.*

47. *Prior to commencement of any highway improvements required by mitigation measures herein which are located within or adjacent to City boundaries, the Director of Public Works shall work with appropriate City agencies to ensure the operational feasibility or recommended mitigation measures.*

48. *Upon adoption of a Road Fee Program by the Board of Supervisors which includes the project site, the County shall pay the pro rata fee attributable to each project phase, or provide credits, prior to commencement of construction of the phase as required for the Musick Jail project under the Road Fee Program.*

49. *Prior to or concurrent with the opening of the Alton Parkway entrance to employee and visitor access, the Director of Public Works shall ensure that project specifications require that contractors install bus aprons on the northerly and southerly sides of Alton Parkway in a manner meeting the requirements of the OCTA, and a sidewalk is constructed along the southerly side of Alton Parkway from Irvine Blvd. to the project entrance on Alton Parkway, and along the project entry drive to the visitor entrance.*

50. *Prior to or concurrent with occupancy of each project phase, the Sheriff's Department shall ensure that sufficient parking spaces to meet the peak hour demand forecasted for that phase. The following summarizes the peak hour parking spaces required for each complex as analyzed herein:*

- *Complex 1 and ancillary buildings: 580 off-street parking spaces*
- *Sheriff's Station and ICF: 235 parking spaces*
- *Complex 2: 375 parking spaces*
- *Complex 3: 530 parking spaces*

5.10.5 Level of Significance After Mitigation

The project will not result in any unmitigated significant adverse transportation, circulation or parking impacts.